CONTRACT TECHNICAL REQUIREMENT
DATE: JANUARY 11, 2000

INCH-POUND

MIL-B-44478 *
30 March 1994

MILITARY SPECIFICATION

BEANS WITH RICE AND BACON, THERMOSTABILIZED, TRAY PACK

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers beans with rice and bacon, thermostabilized in tray pack cans or polymeric trays for the use by the Department of Defense as a component of operational rations.

1.2 Classification. The packaging shall be of the following styles as specified (see 6.1):

Style A – Tray Pack Can
Style B – Polymeric Tray

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.1).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5018 by using the Standardization Document Improvement Proposal (DD Form 1426 appearing at the end of this document or by letter.

SPECIFICATIONS

FEDERAL

MILITARY

MIL-L-1497 - Labeling of Metal Cans for Subsistence Items

DSCP FORM 3507 - Loads, Unit: Preparation of Semiperishable Subsistence Items

MIL-C-44340 - Can, Tray Pack

MIL-PRF–32004 - Packaging of Food in Polymeric Trays

STANDARDS

MILITARY

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those cited in the solicitation.

ENVIRONMENTAL PROTECTION AGENCY (EPA)

National Primary Drinking Water Regulations

(Copies are available from the Office of Drinking Water, Environmental Protection Agency, WH550D, 401 M Street, S.W., Washington, DC 20460.)

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Meat and Poultry Inspection Regulations (9 CFR Parts 301-399)

(Copies are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001

United States Standards for Dry Beans (7 CFR Part 68.101)

United States Standards for Milled Rice (7 CFR Part 68.301)

(Copies are available from the Federal Grain Inspection Service, APHIS, Printing and Distribution Section, C-100 Federal Building, Hyattsville, MD 20782.)

United States Standards for Condition of Food Containers

(Copies are available from the Chairperson, Condition of Container Committee, Agricultural Marketing Service, U.S. Department of Agriculture, Room 2506, South Building, P.O. Box 96456, Washington, DC 20090-6456.)

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS), U.S. FOOD AND DRUG ADMINISTRATION (FDA)

Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder (21 CFR Parts 1-199)

(Copies are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

DEFENSE SUPPLY CENTER PHILADELPHIA (DSCP)

DSCP Form 3556 Marking Instructions for Shipping Cases, Sacks and Palletized/Containerized Loads of Perishable and Semiperishable Subsistence
DSCP FORM 3507, Loads Unit: Preparation of Semiperishable Subsistence Items
(Copies are available from the Commander, Defense Supply Center Philadelphia, ATTN: DSCP-HSL, 700 Robbins Avenue, Bldg 6, Philadelphia, Pa 19111-5092)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.1).

AMERICAN ASSOCIATION OF CEREAL CHEMISTS (AACC)

Approved Methods of the American Association of Cereal Chemists

(Application for copies should be addressed to the American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.)

AMERICAN DEHYDRATED ONION AND GARLIC ASSOCIATION (ADOGA)

Official Standards and Methods of the American Dehydrated Onion and Garlic Association for Dehydrated Onion and Garlic Products

(Application for copies should be addressed to the American Dehydrated Onion and Garlic Association, One Maritime Plaza, 23rd Floor, San Francisco, CA 94111).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3330 - Peel Adhesion of Pressure-Sensitive Tape

D 1974 – Methods of Closing, Sealing and Reinforcing Fiberboard Shipping Containers

D 5118 – Fabrication of Fiberboard Shipping Boxes

(Application for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pa 19428-2959)

A0AC INTERNATIONAL

Official Methods of Analysis of the AOAC

(Application for copies should be addressed to the AOAC International, 2200 Wilson Boulevard, Suite 400, Arlington, VA 22201-3301.)

NATIONAL ACADEMY OF SCIENCE

Food Chemicals Codex

(Application for copies should be addressed to the National Academy Press, 2101 Constitution Avenue, N.W., Washington, DC 20418.)

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ANSI/ASQC Z1.4 – 1993 Sampling Procedures and Tables for Inspection by Attributes

(Application for copies should be addressed to the ASCQ, 611 East Wisconsin Avenue, Milwaukee, WI 53201-3005)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3. First article. When specified (see 6.1), a sample shall be subjected to first article inspection (see 6.2) in accordance with 4.4.

3.2 Ingredients. All ingredients shall be clean, sound, wholesome, and free from foreign material, evidence of rodent or insect infestation, extraneous material, off-odors, off-flavors, and off-colors.

3.2.1 Beans, dry, light red, kidney. Beans shall be dry, mature, light red kidney beans. The dry beans shall be U.S. No. 1 of the U.S. Standards for Dried Beans. The dry beans shall have a moisture content of not more than 18.0 percent and shall not have been held for more than 9 months prior to use in product preparation (see 3.3).

3.2.2 Bacon pieces, cooked. Cooked bacon pieces shall be a USDA inspected product produced from cured and cooked smoked bacon. The bacon pieces shall be free flowing and shall possess the color, odor, and flavor of properly cured and smoked bacon. The bacon pieces shall comply with the following analytical requirements:

Moisture content: 38.0 per cent (maximum)
Fat content: 32.0 per cent (maximum)
Salt content: 7.0 per cent (maximum)

The particle size shall be as follows:

U.S. Standard Series sieve	Percentage retained (approximate)
U.S. Standard 1/4 inch	48.9
U.S. Standard No.4	23.0
U.S. Standard No.8	24.0

The bacon pieces shall be vacuum packaged in oxygen impermeable bags that have been backflushed with nitrogen. The packaging shall provide protection to the product from the effects of light. The packaged product shall be stored and shipped under refrigerated (30^0 to 40^0F) conditions. Time from manufacture to use of the bacon shall not exceed 180 days (see 6.4.1).

3.2.3 Water. Water used for formulation, ice making, and washing shall conform to the National Primary Drinking Water Regulations.

3.2.4 Rice, long grain, parboiled. Rice shall be parboiled, long grain, milled rice, U.S. No. 2 or better of the U.S. Standards for Milled Rice and be of varieties which are suitable for canning. The rice shall contain not more than 2 percent of kernels having white ungelatinized areas. Also, the rice shall contain not less than 10 percent nor more than 15 percent moisture (see 6.4.2).

3.2.5 Oil, vegetable. The vegetable oil (coconut oil, palm oil, and palm kernel oil shall not be used) shall possess a clean bland flavor, and shall have a minimum stability of 15 hours (A.O.M.), have a free fatty acid value not to exceed 0.05 percent, have a moisture/volatile matter content not to exceed 0.06 percent, and shall pass a cold test of 5.5 hours (minimum).

3.2.6 Onions, chopped, dehydrated. The dehydrated chopped onions shall be Fancy Grade of the Official Standards and Methods of the American Dehydrated Onion and Garlic Association for Dehydrated Onion and Garlic Products.

3.2.7 Salt. Salt shall be noniodized, white, refined, sodium chloride with or without anticaking agents and shall comply with the purity standards for sodium chloride of the Food Chemical Codex.

3.2.8 Garlic powder. Garlic powder shall be Fancy Grade of the Official Standards and Methods of the American Dehydrated Onion and Garlic Association for Dehydrated Onion and Garlic Products.

3.2.9 Pepper, black, ground. The ground black pepper shall have been ground from the deep brown to black, deep-set, wrinkled, immature berries of Piper nigrum L. The ground pepper shall have a characteristic, penetrating odor, a hot biting pungent flavor, and a light gray to speckled black-gray color. The black pepper shall contain not less than 2.0 ml of volatile oil per 100 grams and be of such size that 95 percent shall pass through a U.S. Standard No. 16 sieve.

3.2.10 Oregano, ground. Ground oregano shall be derived from the dried leaves of Origanum vulgare L. and shall possess a strong camphoraceous aroma and a pungent, slightly bitter flavor. The ground oregano shall contain not less than 2.0 ml of volatile oil per 100 grams of ground oregano and shall be of such size that 95 percent shall pass through a U.S. Standard No. 30 sieve.

3.2.11 Pepper, red, ground. Ground red pepper shall be derived from red, ripe fruit of the genus Capsicum frutescens L. and shall possess the characteristic yellowish-red to red color. The Scoville Pungency Value shall be not less than 30,000 units. The red pepper shall be uniformly ground to allow a minimum of 95 percent, by weight, to pass through a U.S. Standard No. 40 sieve and not less than 95 percent, by weight, to be retained on a U.S. Standard No. 60 sieve.

3.2.12 Bay leaves, ground. Ground bay leaves shall be derived from the dried leaves of Laurus nobilis L. The bay leaves shall possess a pleasant, aromatic odor and pungent, mildly bitter flavor with a pale green to yellow-green color. Volatile oil content shall be not less than 1.0 ml per 100 grams of ground bay leaves. A minimum of 95 percent, by weight, shall pass through a U.S. Standard No. 30 sieve.

3.2.13 Thyme, ground. Ground thyme shall be derived from the dried leaves and flowering tops of Thymus vulgaris L. and shall possess a fragrant, aromatic odor and an aromatic minty flavor. The ground thyme shall contain not less than 0.8 percent of volatile oil per 100 grams of ground thyme and shall be of such a size that not less than 95 percent, by weight, shall pass through a U.S. Standard No. 30 sieve.

3.2.14 Preblended spice and seasoning mixture. Preblended spices and seasonings may be used. The spices and seasonings in the mixture shall comply with the requirements of this specification. The containers used for the spice and seasoning blend shall be labeled with each ingredient and the percentage of each ingredient in the blend. The ingredients shall be in the same proportions as specified in the ingredient formula.

3.3 Preparation and processing. Processing shall be on a continuous basis.

3.3.1 Bean preparation. The beans shall be thoroughly cleaned to remove dirt, stones, loose skins, and any other extraneous material, and sorted to remove those beans which are spotted, discolored, or affected by pathological or insect injury. The beans shall be thoroughly washed and soaked to a moisture content of 54 to 60 percent (approximately 8-16 hours in cold water). The water shall be changed during bean soaking if there is any indication of souring. The soaked beans shall be thoroughly drained. The beans shall be placed in an excess quantity of 190°F to 200°F water and blanched for not less than 1 minute or more than 3 minutes to prevent discoloration and to remove excess air. The blanched beans shall be immediately cooled to the initial temperature of the cooling water and thoroughly drained. The cooled, drained beans shall be handled in a manner to prevent discoloration and filled into the tray pack can or polymeric tray within 4 hours after blanching.

3.3.2 Rice preparation. The rice shall be prepared using the following steps:

NOTE: The blanching process must be carefully controlled in order to meet the finished product moisture content requirement.

a. The rice shall be placed in an excess quantity of 190^0 to 200^0 F water and blanched only for the amount of time sufficient to ensure that the blanched, rinsed cooled and thoroughly drained rice weighs approximately 2.5 to 2.8 times its original dry weight.

b. The blanched rice shall be thoroughly rinsed with clean cool water to remove all excess rice starch.

c. The blanched, rinsed rice shall be thoroughly drained.

3.3.3 Product preparation. The product shall be formulated and prepared as follows:

Ingredients	Percent by Weight
Beans, light red, kidney, soaked	44.00
Rice, long grain, parboiled, blanched	34.75
Water	10.00
Oil, vegetable	5.00
Bacon pieces, cooked	3.00
Onions, chopped, dehydrated,	1.40
Salt 1/	1.00
Garlic powder	0.55
Pepper, black ground	0.15
Oregano, ground	0.06
Pepper, red, ground	0.05
Bay leaves, ground	0.02
Thyme, ground	0.02

1/ The total amount of salt in the formula shall be adjusted as necessary to produce a product that complies with the finished product salt requirements (see 3.6).

NOTE: The following product preparation procedures were used in the development of this product. Alternate product preparation procedures may be used provided the finished product requirements are met.

a. The vegetable oil shall be combined with the blanched rice and mixed to sufficiently coat the rice grains with oil.

b. The remaining ingredients, except beans, shall be added to the rice, oil mixture and mixed only to the extent necessary to ensure a uniform blend of ingredients.

c. The beans shall be added to the mixture and mixed only to the extent necessary to ensure a uniform distribution of beans throughout the product.

3.4 Tray pack or polymeric tray filling and sealing. Each tray pack can (see 5.1.1) or polymeric tray (see 5.1.2) shall be filled with product to conform to the finished product requirements and to the following requirements:

a. For style a, immediately after filling, each can shall be sealed in accordance with the can manufactures guidelines/requirements and 21 CFR, Part 113, Subpart D, or CFR 9, Part 318, Subpart G, as applicable (see 4.5.5), and under a vacuum established by a processing authority and specified in the scheduled process so as to ensure compliance with the finished product requirement (see 3.6p). For style b, immediately after filling, each polymeric tray shall be hermetically sealed so as to ensure compliance with the requirements specified in MIL-PRF-32004 (see 4.5.5.1).

b. Each filled and sealed tray pack can or polymeric tray shall be in the retort process within 2 hours after sealing.

3.5 Tray pack thermoprocessing (Style a only). The filled and sealed tray pack cans or polymeric trays shall be thermostabilized by retorting until a sterilization value (F_0) of not less than 6 has been achieved.

3.5.1 Polymeric tray processing (Style b only). The filled and sealed polymeric trays shall be processed until commercially sterile (see 4.5.3.5).

3.6 Finished product requirements. Unless otherwise specified finished product for Style a and Style b shall comply with the following requirements:

a. There shall be no foreign material such as, but not limited to dirt, insect parts, hair, wood, glass, or metal.

b. There shall be no foreign odors or flavors such as, but not limited to, burnt, scorched, stale, sour, rancid, or moldy.

c. There shall be no color foreign to the product.

d. For Style a, no individual can, shall contain less than 96 ounces of product. For Style b, no individual polymeric tray shall contain less than 88 ounces of product.

e. For Style a, the average net weight shall be not less than 98 ounces. For Style b, the average net weight shall be not less than 90 ounces.

f. The rice granules shall be slightly firm but not hard, mushy, or pasty.

g. The beans shall be tender but not hard, mushy or pasty.
h. Not more than 5 percent by weight of the beans shall be broken, mashed or have loose skins.

i. Appearance of rice shall be distinct, uniform rice grains.

j. Individual components shall be uniformly distributed.

k. The average fat content of the finished product shall be not greater than 7.0 percent.

l. No individual tray pack can or polymeric tray shall have a fat content greater than 8.0 percent.

m. The moisture content shall be not less than 58 percent and not greater than 63 percent.

n. The salt content of any individual tray pack can or polymeric tray shall be not less than 0.8 percent nor greater than 1.3 percent.

o. The product shall show no evidence of excessive heating (materially darkened or scorched).

p. For Style a only, filled, sealed, and retorted cans must show evidence of proper vacuum as determined by concavity of the can lid (see 4.5.6).

q. For Style b only, the packaged food shall meet the minimum shelf life requirement of 18 months at 80^{o}F or 36 months at 80^{o}F (see 4.5.3.6).

r. For Style b only, the filled, sealed, and processed polymeric tray shall show evidence of proper residual gas volume and internal pressure (see 4.5.6.1.).

3.6.1 Palatability. The finished product shall be equal to or better than the approved preproduction sample (see 6.1) in palatability and overall appearance.

3.7 Plant qualification. The pork components and the finished product shall originate and be produced, processed, and stored in plants regularly operating under Meat and Poultry Inspection Regulations of the U.S. Department of Agriculture.

3.8 Federal Food, Drug, and Cosmetic Act. All deliveries shall conform in every respect to the provisions of the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

4. QUALITY ASSURANCE PROVISIONS

4.1 Contractor's responsibility. Inspection and acceptance by the USDA shall not relieve the contractor of obligation and responsibility to deliver a product complying with all the requirements of this specification. The contractor shall ensure product compliance prior to submitting the product to the USDA for any inspection.

4.2 Inspection and certification. Product acceptability shall be determined by the USDA. The USDA will determine the degree of inspection and supervision necessary to ensure compliance with the requirements of this specification.

4.3 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.4)
b. Quality conformance inspection (see 4.5)

4.4 First article inspection. When a first article is required (see 6.1), it shall be inspected in accordance with the quality assurance provisions of this specification and evaluated for overall appearance and palatability. Any failure to conform to the quality assurance provisions of this specification or any appearance or palatability failure shall be cause for rejection of the first article.

4.5 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with ANSI/ASQC Z1.4-1993.

4.5.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.5.1.1 Ingredient and component examination. Conformance of ingredients and components to identity, condition, and other requirements specified in 3.2 shall be certified by the ingredient supplier or ingredient manufacturer, and compliance shall be verified by examination of pertinent labels, markings, U.S. Grade Certificates, certificates of analyses, or other such valid documents acceptable to the inspection agency. If necessary, each ingredient shall be examined organoleptically or inspected according to generally recognized test methods, such as the standard methods described in the Official Methods of Analysis of the AOAC International and in the Approved Methods of the American Association of Cereal Chemists, to determine conformance to the requirements. Any nonconformance to an identity, condition, or other requirement shall be cause for rejection of the ingredient or component lot or of any involved product.

4.5.2 In-process examination. In-process examination shall be performed to determine conformance to the preparation, processing, can interior coating, filling, sealing, and packaging requirements. Any nonconformance revealed by actual examination or by review of records of time, temperature, and formulation or of other valid documents shall be cause for rejection of the involved product.

4.5.3 Tray pack can or polymeric tray inspection. The USDA reserves the right to separate the inspection lot into smaller inspection lots.

4.5.3.1 Net weight examination. Randomly select 30 filled and sealed tray pack cans or 30 filled and sealed polymeric trays from the inspection lot and weigh separately. Subtract the average tare weight (determined by randomly selecting and weighing 30 of the empty tray pack cans and lids or 30 polymeric trays and lids used in preparing the product and dividing the total weight by 30) from the weight of each tray pack can or polymeric tray in the sample. The results shall be reported to the nearest 1 ounce. For Style a, if the average net weight is less than 98 ounces, or if the net weight of any individual can is less than 96 ounces, the lot shall be rejected. For Style b, if the average net weight is less than 90 ounces, or if the net weight of any individual polymeric tray is less than 88 ounces, the lot shall be rejected.

4.5.3.2 Double sampling plan for product examination. The finished product shall be examined for the defects listed in table I utilizing the double sampling plans indicated in ANSI/ASQC Z1.4-1993. The lot size shall be expressed in tray pack cans or polymeric trays. The sample unit shall be one filled and sealed tray pack can or one filled and sealed polymeric tray. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 4.0 for major defects and 6.5 for minor defects. The sample cans or polymeric trays shall be heated in accordance with heating instructions on the can label.

TABLE I. Product defects 1/ 2/ 3/

Category		Defect
Major	Minor	
101		Product shows evidence of excessive heating (materially darkened or scorched)
	201	More than 5 percent by weight of the beans in a can or polymeric tray are broken, mashed or have loose skins
	202	Ingredients not uniformly distributed throughout the product
	203	Texture of beans hard, mushy, or pasty
	204	Texture of rice hard, mushy, or pasty

205 Appearance of rice not distinct, uniform rice grains

1/ The presence of foreign material (for example, dirt, insect parts, hair, wood, glass, metal), foreign odor or flavor (for example, burnt, scorched, moldy, rancid, sour, stale), or foreign color shall be cause for rejection of the lot.

2/ Product not equal to or better than the approved preproduction sample in palatability and overall appearance shall be cause for rejection of the lot (see 3.6.1).

3/ Stones shall be defined as extraneous material. If one stone is found in two or more cans or polymeric trays the lot shall be rejected. If more than one stone is found in any can or polymeric tray the lot shall be rejected.

4.5.3.3 Fat and salt content testing. Three filled and sealed tray pack cans or three filled and sealed polymeric trays shall be selected at random from the lot. The product shall be tested for fat content in accordance with the Official Methods of Analysis of the AOAC, methods 960.39, 976.21, or 985.15, and for salt content in accordance with the Official Methods of Analysis of the AOAC, method 935.47, except that preparation of the samples shall be as follows: The unopened tray pack cans or polymeric trays shall be gently warmed in a water bath to melt fat adhering to the inside of the cans or polymeric trays. The cans or polymeric trays shall be opened and the entire contents of each can or polymeric tray shall be separately blended in a Waring Blender or equivalent. The test results shall be reported to the nearest 0.1 percent. Any result failing to conform to the fat or salt requirements in 3.6 shall be classified as a major defect and shall be cause for rejection of the lot.

4.5.3.4 Moisture content testing. The prepared samples from each of the three tray pack cans or three polymeric trays used in salt testing shall be tested for moisture content in accordance with the Official Methods of Analysis of AOAC, Method 925.45D. The test should be performed with the addition of sand. Thoroughly incorporate 3-4 grams of washed, ignieted sand into 8-10 grams of prepared sample and continue as described in Method 925.45D to a constant weight (less than or equal to 2 mg). Each sample must be blended to uniformity using a blendor or a food processor. The drying time shall be 5-6 hours. The blending must be rapid and conducted in such a way that minimum heat is transferred to the product and that the product has minimum exposure to atmospheric moisture. The results shall be calculated as percent moisture and reported to the nearest 0.1 percent. Any test result not meeting the requirements of 3.6 shall be classified as a major defect and shall be cause for rejection of the lot.

4.5.3.5 Commercial sterility. The sample size shall be one filled, sealed, and thermoprocessed tray pack can or polymeric tray selected from each process batch in the lot. Incubate the sample cans or trays at $95^{o}F$ +/- $5^{o}F$ for 10 days, unless otherwise specified by the inspection agency. Any evidence of swelling or microbial activity following incubation shall be cause for rejection of the lot.

4.5.3.6 Shelf life (Style b only).

4.5.3.6.1 Shelf life (18 months). Compliance with requirement shall be determined by incubation for 18 months at 80°F. Following the incubation period, the contractor shall perform an organoleptic test comparing the incubated samples to the control product. An acceptable product would receive a score of 5 or higher based on a hedonic scale. Contractor shall provide a certificate of conformance.

4.5.3.6.2 Shelf life (36 months). Compliance with requirement shall be determined by incubation for 1 month at 120 or 6 months at 100°F or 36 months at 80°F. Following the incubation period, the contractor shall perform an organoleptic test comparing the incubated samples to the control product. An acceptable product would receive a score of 5 or higher based on a hedonic scale. Contractor shall provide a certificate of conformance.

4.5.4 Can condition examination (Style a only). Examination of filled and sealed tray pack cans shall be in accordance with the United States Standards for Condition of Food Containers, except that inspection for labeling shall be in accordance with 4.5.4.1. In addition, scratches, scuffs, or abrasions that occur on the outside coating as a result of the filling, sealing, and thermoprocessing of the tray cans shall not be scored as a defect.

4.5.4.1 Can label examination (Style a only). Labels shall be examined for defects in accordance with MIL-L-1497 (see 5.4) except, for self-adhering labels, the following additional defects shall apply:

Major: Label torn or scratched so as to obliterate any of the markings.

Minor: Air bubbles under label.
Label not properly adhered to can, for example, label raised or peeled back from edges or corners.

4.5.4.2 Label adhesive examination (Style a only). When self-adhering labels are used, the adhesive shall be tested in accordance with ASTM D 3330.

4.5.4.3 Polymeric tray condition examination (Style b only). Examination of filled and sealed polymeric trays shall be in accordance with Table II or MIL-PRF-32004.

4.5.4.3.1 Polymeric tray label examination (Style b only). Labels shall be examined in accordance with the Quality Assurance Provisions and Packaging Requirements of MIL-PRF-32004.

4.5.5 Can closure examination (Style a only). Can closures shall be examined visually and by teardowns in accordance with the can manufacturer's guidelines/requirements and 21 CFR Part 113, Subpart D or 9 CFR, Part 318, Subpart G, as applicable. Any nonconformance based on observation of can seam teardowns or on record of can seam teardowns shall be classified as a major defect and shall be cause for rejection of any involved product.

4.5.5.1. Polymeric tray closure examination (Style b only). Polymeric tray closure shall be examined in accordance with Table II of MIL-PRF-32004.

4.5.6 Vacuum examination (Style a only). Cans shall be allowed to cool to $75^0 \pm 5^0$F, held for at least 24 hours after sealing, and then examined for vacuum retention. To examine, lay a straight edge in the center of the lid along the length of the tray pack. Both ends of the straight edge shall touch the lid at the inside edge of the double seam. There shall be a visible gap between the straight edge and the lid for the entire distance of the label panel. Using a shorter straight edge, the same procedure shall be used across the width, in the center of the tray pack can. One measurement shall be made when examining a ribbed lid, lay the straight edge only between the two center ribs along the length of the can. The inspection lot shall include only tray packs produced in a single shift on a single sealing machine. The sample size shall be 50 cans. Any nonconformance shall be classified as a major defect and shall be cause for rejection of the lot.

4.5.6.1. Polymeric tray testing(Style b only). Polymeric trays shall be tested for conformance to residual gas volume and internal pressure requirements in accordance with MIL-PRF-32004.

4.5.7 Shipping container examination (Style a and Style b). The filled and sealed shipping containers shall be examined for defects listed below. The lot size shall be expressed in shipping containers. The sample unit shall be one shipping container fully packed. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0 for major defects and 10.0 for total defects.

Major: National stock number, item description, contract number, or date of pack markings missing, incorrect, or illegible.
Reinforced with other than nonmetallic strapping or tape.
For Style a only, dimensions of pads not as specified.
For Style b only, interior packing with fiberboard liner or pads not as specified.
For Style b only, protective sleeve missing.

Minor: Other required markings missing, incorrect, or illegible.
Arrangement or number of cans or polymeric trays not as specified.

4.5.8 Unit load inspection (Style a only). Inspection of unit loads shall be in accordance with the quality assurance provisions of DSCP FORM 3507.

4.5.8.1 Unit load inspection (Style B only). The unit loads shall be examined in accordance with the Quality Assurance Provisions and Packaging Requirements of MIL-PRF-32004.

5. PACKAGING

5.1 Preservation. The product shall be preserved in accordance with Level A.

5.1.1 Level A (Style a only). Ninety-eight ounces of food product shall be filled into a tray pack can conforming to MIL-C-44340 and sealed and thermoprocessed as specified in 3.4 and 3.5.

5.1.2 Level A (Style b only). Ninety ounces of food product shall be filled into a polymeric tray conforming to MIL-PRF-32004 and sealed and processed as specified in 3.4 and 3.5.1.

5.2 Packing (Style a only). The product shall be packed in accordance with Level A, B, or C as specified (see 6.1).

5.2.1 Level A Packing. Four cans of product, preserved as specified in 5.1, shall be packed in a snug-fitting fiberboard box, constructed and closed in accordance with style RSC-L or HSC-L with an HSC full depth cover, grade V2s of ASTM-D-5118. The cans shall be packed flat, four in depth within the box, with the first two cans placed with the lids together and the next two cans with the lids together. The inside of each box shall be provided with a box liner and five fiber-board pads fabricated of grade V3c fiberboard. The height of the box liner shall be equal to the full inside depth of the box (+0 inch, -1/8 inch). Flute direction of the box liner shall be vertical. The pads shall be placed between the cans and on the top and bottom of the stacked cans. The pad dimensions shall be not less than 1/8 inch of the full length and width dimensions of the box. Each box shall be reinforced with nonmetallic strapping or pressure-sensitive adhesive filament-reinforced tape in accordance with the appendix of ASTM-D-1974. Shipping containers shall be arranged in unit loads in accordance with DSCP FORM 3507 for the type and class of load specified (see 6.1), except that the unit load shall consist of 48 boxes with 12 boxes per course and four courses per load with all courses having the same pattern. Boxes may be stacked by interlocking and reversing each tier, or by columnar stacking with paperboard or fiberboard sheets placed between each tier. When unit loads are strapped, strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.2.2 Level B packing. Four cans of product, preserved as specified in 5.1, shall be packed as specified in 5.2.1, except the box shall be constructed of grade V3c, V3s, or V4s fiberboard.

5.2.3 Level C packing. Four cans of product, preserved as specified in 5.1, shall be packed in a snug-fitting fiberboard box, constructed and closed in accordance with style RSC-L, class domestic, grade 275 of ASTM-D-5118. The cans shall be packed flat, four in depth within the box with the first two cans placed with the lids together and the next two cans with the lids together. The inside of each box shall be provided with a box liner and five fiberboard pads. The height of the box liner shall be equal to the full inside depth of the box (+0 inch, -1/8 inch). Flute direction of the box liner shall be vertical. The pads shall be placed between the cans and on the top and bottom of the stacked cans. The pad dimensions shall be not less than 1/8 inch of the full length and width dimensions of the box and shall be fabricated of class domestic, grade 175 fiberboard.

5.2.4 Polymeric tray packing for shipment to ration assembler (Style b only). Packing for shipment to ration assembler shall be in accordance with the Quality Assurance Provisions and Packaging Requirements for MIL-PRF-32004.

5.3 Unit loading (Style a only). When specified (see 6.1), the product, packed as specified in 5.2.2 or 5.2.3, shall be arranged in unit loads in accordance with DSCP FORM 3507 for the type and class of load specified, except that the unit load shall consist of 48 boxes with 12 boxes per course and four courses per load, with all courses having the same pattern. Boxes may be stacked by interlocking and reversing each tier, or by columnar stacking with paperboard or fiberboard sheets placed between each tier. When unit loads are strapped, strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.3.1 Unit loading (Style b only). Unit loads shall be in accordance with the Quality Assurance Provisions and Packaging Requirements for MIL-PRF-32004.

5.4 Labeling (Style a only). Each tray pack can shall be labeled in accordance with MIL-L-1497 and with the following:

- Official establishment number (for example, EST 38) or a three-letter code identifying the establishment
- Lot number 1/
- Production shift number 1/
- Retort identification number 1/
- Retort cook number 1/

1/ The lot number shall be expressed as a four digit Julian code. The first digit shall indicate the year of production and the next three digits shall indicate the day of the year (Example, March 19, 1994, would be coded as 4078). The Julian code shall represent the day the product was packaged and processed. Sub-lotting (when used) shall be represented by an alpha character immediately following the four digit Julian code. Following the four digit Julian code and the

alpha character (when used), the other required Code information shall be printed in the sequence as listed above.

In addition, the name of the product shall be marked, stamping is permitted, on one 1001 by 200 side of the can. The labeling shall be legible when examined as specified in 4.5.4.1 after preparation of the product in accordance with heating instructions. Paper labels are not permitted. In addition, cans shall show the following statements:

TO HEAT IN WATER: Submerge unopened can in boiling water. Simmer gently for 50 to 60 minutes. Avoid overheating (can shows evidence of bulging).

CAUTION: Use care when opening as pressure may have been generated within the can.

TO HEAT IN OVEN: Either punch several holes in the lid of the can or open the can in the usual manner leaving the loose lid in place. Place in a 350^0F oven for 50 to 60 minutes.

WARNING: Do not place unopened can in oven. This may cause the can to burst.

YIELD: Serves 18 portions of 2/3 cup each.

As an alternative labeling method, a preprinted, self-adhering, 0.002-inch thick, clear polyester label printed with indelible black ink may be used. Self-adhering labels shall be applied after retorting. Pressure-sensitive adhesive shall require no preparation prior to application. Labels shall tack quickly and adhere without curling or breaking. The adhesive shall have a minimum adhesion of 60 ounces per inch width when examined as specified in 4.5.4.2. When self-adhering labels are used, the tray pack cans shall be labeled with the Julian code and a product code prior to retorting.

5.4.1 (Labeling (Style b only). Each polymeric tray shall be labeled in accordance with the Quality Assurance Provisions and Packaging Requirements for MIL-PRF-32004.

The tray lid shall show the following statements:

TO HEAT IN WATER: Submerge unopened tray in boiling water. Simmer gently 50-55 minutes. Avoid overheating (tray shows evidence of bulging).

WARNING: Do not heat tray in oven.

TO TRANSPORT AFTER HEATING: Insert tray back into protective sleeve to protect during transport. If sleeve is unavailable, stack trays lid-to-lid with fiberboard pads in between.

CAUTION: Use care when opening as pressure may have been generated within the tray.

TO OPEN: Using a clean knife, cut the lidding around the inside perimeter of the tray seals.

SUGGESTION: Cut lid along 3 sides and fold over uncut portion. Fold back to keep unused portions protected.

YIELD: Serves 18 portions of approximately 2/3 cup each.

5.5 Marking (Style a only).

5.5.1 Shipping containers. In addition to any special marking required by the contract or purchase order, shipping containers shall be marked in accordance with DSCP Form 3556.

5.5.2 Unit loading. Unit loads shall be marked in accordance with DSCP Form 3336. In addition, the following precautionary marking in capital letters larger than other marking shall be included:

5.6 Marking (Style b only). Marking of shipping containers and unit loads shall be in accordance with the Quality Assurance Provisions and Packaging Requirements for MIL-PRF-32004.

CAUTION; DO NOT STACK PALLETS IN TRANSIT OR MORE THAN TWO HIGH IN STORAGE, UNLESS PALLET RACKS ARE USED.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Acquisition requirements. Acquisition documents shall specify the following:

a. Title, number, and date of this specification.
b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
c. When a first article is required (see 3.1, 4.4, and 6.2).
d. Provisions for approved preproduction samples (see 3.6.1 and 6.2).
e. Level of packing required (see 5.2).
f. Type and class of unit load when unit loading is required (see 5.2.1 and 5.3).
g. Style Required (see 1.2).

6.2 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of Federal Acquisition Regulations (FAR) 52.209-4. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.3 Appropriate level of pack. Based on the conditions known or expected to be encountered during shipment, handling, and storage of the specified item being procured, the procuring activity should select the appropriate level of pack in accordance with the criteria established in AR 700-15/NAVSUPINST 4030.28/AFR 71-6/MCO 4030.33A/DLAR 4145.7.

6.4 Ingredient information.

6.4.1 Bacon pieces, cooked. It has been found that large bacon pieces product #2732 produced by Oscar Mayer, P.O. Box 7188, Madison, WI, 53707, meets the requirements of 3.2.2 and performs satisfactorily in this product.

6.4.2 Rice, long grain, parboiled. It has been found that Uncle Ben's Parboiled, Converted Brand Rice, Uncle Ben's Inc., Houston, TX, and Riviana Parboiled (PB-S), Riviana Foods, Inc., Houston, TX, meet the requirements of 3.2.4 and perform satisfactorily in this product.

6.5 Subject term (key word) listing.

Canned food
Combat field feeding
Food processing
Operational ration
Shelf stable

Custodian:	Preparing activity:
Army - GL	Army - GL
Navy - SA	
Air Force - 35	(Project 8940-0771)

Review activities:

Army - MD, QM
Navy - MC
DLA - SS

Notes:

1. 5-17-99 Changes made to addresses and DSCP FORM 3507.
2. 10-3-01 See attached

TO: DSCP-HRUT(Charya/3832)

SUBJECT:(ES02-01) Request for Deviation; Rice, Oriental Style, Tray Pack, MIL-R-44473; and Beans with Rice and Bacon, Tray Pack, MIL-B-44478; Vanee Foods; DSCP Case No. SS-01-xxxxx

1. Date received: 1 October 2001
   Date due: 3 October 2001
   Date replied: 3 October 2001

2. Natick concurs with the request to change the moisture requirements for the subject items. The rational to support this change is that more rice would be needed to replace the water chestnuts in TP oriental style rice and therefore the amount of water carried by the rice would make the products wet and mushy with the current requirements.

The contractors are all in agreement that the moisture needs to be adjusted in able to comply with the texture requirements.

3. Natick recommends the following changes to the subject documents for all current, pending and future procurements until the documents are formally amended or revised:

a. For Rice, Oriental Style, Tray Pack, MIL-R-44473:
Para 3.6, j. delete “58”, insert “56”; delete “63”, insert “61”

b. For Beans with Rice and Bacon, Tray Pack, MIL-B-44478:
Para 3.6, m. delete “58”, insert “57”; delete “63”, insert “62”

4. Natick recommends that DSCP make appropriate changes to the polymeric tray subject items that are under contract.

DONALD A. HAMLIN
Team Leader
Food Engineering Services Team
Combat Feeding Program

ES REQUIRED

MFriel

CF:

Harrington	Salerno
Richards	Charya
Trottier	M.Malason
B.Hill	L.DyDuck
Valvano	C.Henry
A. Konrady	T.Brown
M. Konrady	A.Boies
Hoffman	Swantak

Beward
Wagner
Byrd